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GEOGRAPHY AS A SOCIOLOGICAL STUDY.

I.

HUMAN history, says M. Taine, in his introduction to the *History of English Literature*, may be resolved into three factors — environment, race and epoch. That this analysis is substantially exhaustive appears from the unanimity with which these elements have been recognized by those who have considered the philosophy of history. Even the poet-philosopher, Herder, and the idealist, Hegel, do not hesitate to introduce their speculations by a description of the earth, its climates, and its material possibilities for civilization. Another arrangement of the elements of history is, however, made by M. Bertillon, who divides them into the “mesologic” influences of environment and the hereditary social forces.¹ On analysis this division does not differ widely from Mr. Bryce’s classification of the factors in American history as physical environment, race characteristics and “international concomitants.”² The importance assigned to these elements, however, varies widely with the man and the time. Hence it is doubtful if the followers of Carlyle or Mulford would agree with M. Leroy-Beaulieu that the causes of the present distribution of population in Russia are “twofold, historical and physical : the latter essential, permanent ; the former *accidental*, transitory and consequently bound to yield to the others in the end.”³ But, whatever the relative importance assigned, all writers recognize environment as a fundamental factor. Most of them, however, after formally making mention of it in their introductory remarks, have dismissed it from further consideration.

The last decade has witnessed a marked change in this respect. A widespread revival of interest in geographical

¹ Bull. Soc. d'Anthropologie, Paris, 2d ser., VII, p. 711.

² The American Commonwealth, vol. ii, p. 455.

³ The Empire of the Tsar, vol. i, p. 38.

studies, especially in their relation to human history and institutions, is now under way among English-speaking peoples. The apostles of the movement have been the late historian, Mr. Freeman, and the eminent author of *The American Commonwealth*;¹ while several historical works of the last year evince the same interest in this phase of history. Mr. Payne, in his *History of the New World called America*, has shed a flood of new light upon an old theme.² Mr. Justin Winsor, in *The Mississippi Basin*, shows the geographical idea logically developed "with such firm insistence and with such happy results that he almost seems to have created a science for which as yet we have no name — which is capable of development even to the predictive stage."³ The movement has even invaded the sacred precincts of Biblical literature in Smith's *Geography of the Holy Land*, which is in itself a wonderfully suggestive commentary upon the course of Jewish history.⁴

The real significance of this tendency in historical writing lies not in its novelty, for it merely revives an old idea, but in the fact that the initiative comes from the historians, rather than from the geographers or the economists. Geography has

¹ An interesting sketch of the geographical work of Mr. Freeman will be found in the *Geographical Journal*, London, for June, 1892. The province of geography in its relation to history is discussed by Mr. Freeman in his *Methods of Historical Study*; and his uncompleted *History of Sicily* shows the extreme development of the ideas found in his *Historical Geography of Europe*. Despite this tendency, we find a late reviewer (*Nation*, July 18, 1895, p. 50) declaring that "after all his everlasting insistence on the great external facts of the history of the western world, [he] erred chiefly in going no further."

² *Vide* review by Professor Giddings in *POLITICAL SCIENCE QUARTERLY*, vol. viii, p. 733.

³ In dedicating the volume to the President of the Royal Geographical Society, he refers to the influence of physical geography in these words: "I would not say that there are not other compelling influences; but no other control is so steady." *Vide* review in *Nation*, July 25, 1895.

⁴ Since this article was written, a discussion of the influence of environment upon history has appeared in W. D. Babington's *Fallacies of Race Theories as applied to National Characteristics* (Longmans, Green & Co., 1895). Cf. Cliffe-Leslie in *Fortnightly Review*, XVI, p. 753: "The doctrine of race not only does not solve the problems which really arise respecting national diversities of character, career and condition, but prevents those problems from being even raised."

heretofore appeared in the guise of a suppliant for recognition at court. In fact, long before Comte refused to recognize it as a distinct science, it was the philosophers, Kant, Hegel, Voltaire, and not the historians, who acknowledged its importance.¹ The burden of proof in maintaining the value of geographic science for the historian has therefore rested in the past mainly upon the geographers; and their zeal for the association of geography and history has been under suspicion as probably due merely to a selfish desire to take over from the latter the human element, which alone renders their own field widely attractive.² On the other hand, there is a disposition among certain scientists to resent the implied subordination of geography to history; and to ascribe to such subordination in large measure the lack of interest in purely geographical studies.³ Whatever the cause may have been, it is certain that until recently there were no geographical textbooks in English which could not be classed either as topographical descriptions or else as miniature gazetteers. To be sure, the followers of Sir Charles Lyell had revolutionized the science of the earth; but at the same time they had transformed a large part of geography into dynamic geology. What was left was for a long time untouched by the life-giving influences of the comparative method.

The geography that is attracting the historian today is that which is defined by Gonner as "the study of the environments of man." It is the geography of Guyot and of Ritter, enlightened by the newly developed sciences of anthropology, archaeology, sociology and even statistics. Call it "physiography" — defined by Professor Huxley as the science of man in relation

¹ A concise history of geography as a science is given in the opening chapters of Fr. Ratzel, *Anthropo-geographie*, as well as in *Proc. Roy. Geog. Soc.*, April, 1888, p. 205. Cf. *POLITICAL SCIENCE QUARTERLY*, IX, p. 321.

² A special report (*Geog. Jour.*, II, no. 1) on geography in the English Universities shows a slight demand for physical or descriptive as compared with that for historical geography. *Vide* letter of Mr. Bryce on the need for geographical instruction, in *Roy. Geog. Soc.*, *Supp. Papers I*, part iv, p. 592.

³ *Vide* Gen. Greeley's Presidential Address in *National Geog. Mag.*, VI, p. 201; and President Goldschmidt in *Proc. Brit. Assoc. Adv. Science*, Birmingham meeting; answered in *Proc. Roy. Geog. Soc.*, March, 1887.

to the earth, as distinct from geography, the science of the earth in its relations to man ; “anthropo-geography,” with Professor Ratzel ; or “histo-geography,” with other writers : all these names point to the same end. It should not be confounded with the economic (*wirtschaftliche*) and statistical geography of Zehden, Deville or Chisholm ; the commercial geography with which the secretary of the Royal Geographical Society crowns his pyramid of geographical studies ;¹ or the administrative geography of General Greeley and the *École Libre des Sciences Politiques*. Nor is it the political geography of the late Mr. Freeman, or of Dr. Lucas. In fact geography, in any of the familiar senses, is after all only one element in this new science, which is simply an attempt to explain the growing conviction so well expressed by Professor Giddings, “that civilization is at bottom an economic fact.” As such the new discipline is subordinate to history and yet superior to it. It stands to history as anatomy does to art — and no one would claim that art is degraded because it makes use of the exacter science. This conception will protect the students of the new geography from the charge of materialism, and will answer any objection that they are dragging history in the dust. In this sense, then, geography becomes a branch of economic as well as of historical inquiry, deriving from that fact twofold importance.

II.

The history of this quasi-geographical study of human environment may be roughly divided into three periods, conditioned by the rise and acceptance of the theory of evolution.

The first period lasted until the appearance of *The Origin of Species*. Its great representatives were Ritter, Guyot and Alexander von Humboldt, who performed the necessary work of preliminary classification and description. They did the work in geography which Agassiz, Richard Owen and Sir J. Wm. Dawson performed in their respective fields and times ;

¹ *Scot. Geog. Jour.*, II, p. 455.

and their results were subject to the same limitation, namely, the lack of a general coördinating principle. They perceived the order in nature, but explained it all on the teleological basis. Africa and Asia were practically unknown ; no science of the human race had accumulated data ; and the speculations of these earlier thinkers, therefore, were necessarily of a very indefinite, albeit praiseworthy nature : from lack of proper material they were constrained merely to outline general principles.¹ The only other studies of a similar nature in this period were those of Quetelet and Bernard Cotta. These were to be sure definite and specific ; they contained to some degree the ideas of mass and averages ; but they were each limited to a small field.

The literature produced in the period just noticed was exclusively continental. The decade following 1859, which we may call the probational period for the doctrine of evolution, at first promised well for the extension of geographical studies into the English field. Ritter's works were received with great favor in translations ; and Guyot's Lowell Lectures awakened intense interest in America. No one thought of the lurking danger for the teleological idea. But suddenly "the gloomy and scandalous" theories of Thomas Buckle cast a deep shade over the field ; the alarm awakened by the lectures of Vogt and the claims of Darwin and Huxley became intensified ; and the sudden outburst all over Europe of interest in anthropological studies excited new fears. Moreover, the advocates of the doctrine of environment insisted upon taking the apparently harmless general principles of the founders of modern geography, and carrying them out into all details of social life. Long before the proper data existed, Buckle, Crawford, Pellarin

¹ This defect in earlier speculations is recognized even by their admirers. It is well put in the introduction to the first American translation of Ritter's *Allgemeine Vergleichende Geographie* : "It is to be regretted that the turn of the German mind is so little toward illustration of principles ; that it rolls out thought after thought, keeping them in an abstract shape, instead of casting them in that more concrete form which is characteristic of the results of the French, English and American minds." It is certain to-day that the immediate future of this science will depend upon the definiteness with which its conclusions are stated and illustrated.

and all the rest tried to copy the precision of the older exact sciences. As a result, the young science, trying too soon to walk alone, received a severe fall. And it must be confessed that the exaggerated claims of the economists, and the final gasps of the utilitarian philosophers, also contributed in some measure to bring about the disaster.

Uprooted in England, the new geographical ideas found on the continent a congenial soil, that had long been prepared by Bodin, Montesquieu and Quetelet. Cuvier had not hesitated to trace the close relation borne by philosophy and art to the underlying geological formations.¹ The French inclination to materialism offered a favorable opportunity for the propagation of the environment doctrine. It was kept alive in anthropology by Bertillon *père* and Perier ;² in literature by Taine ; and in the study of religions by Renan.³ Later it will be shown that where the choice lies between heredity and environment, the French almost always prefer the latter as the explanation for any phenomenon. In Germany the earlier work of Cotta and Kohl was continued by Peschel, Kirchhoff and Ad. Bastian, and in later days with especial brilliancy by Professor Fr. Ratzel.

At the present day there is a pronounced movement toward a favorable reception, even among English-speaking peoples, of the science which deals with environment in history. This is apparently due to the decay of antagonism to the doctrine of evolution. The new geography, regarded for some years with favor by scientists in general, is now beginning to exercise a perceptible influence on historical writing. In England this tendency has been stimulated by Wallace, Geikie, Strachey and Keltie. The Royal Geographical Society began its assertion of rights in history as early as 1877 ; and to-day the leading English Universities have courses in this new and

¹ Compare Froude's address on the philosophy of Mr. Buckle in his *Short Studies on Great Subjects*, 2d ed., 1867, p. 14.

² P. Cauwès, *Cours d'Économie Politique*, I, 217.

³ *Vide* Bull. Soc. d'An., Paris, 1870 to 1874 ; especially 2d ser., VII (1872), p. 711. Also Mém. Soc. d'An. for the same period. The École d'Anthropologie de Paris has had courses of lectures upon this subject for some years. *Vide* *Histoire des Langues Sémitiques*, Paris, 1863 ; and even earlier in *Asiatic Review*, Feb. and May, 1859.

reorganized geography.¹ In the United States Professors Shaler and Mason have contributed much to a like result ;² although the Faculty of Political Science at Columbia College were the first to institute a regular and separate course of lectures upon this subject, distinct from those in descriptive and physical geography which belong to the departments of natural science. The tendency to broaden the scope of economics, and the new interest in sociology, have together made a distinct place for the new geography. Cliffe-Leslie and Roscher pointed the way ; and Aug. Meitzen, Ravenstein, Kirchhoff and others brought the use of statistics to its aid, until to-day it stands ready to serve as an introduction as well as a corrective to the scientific study of society. That the historians are recognizing this fact is but a natural sequence of its mode of development.

III.

In every science which deals with man we may discover some trace of a division of opinion, similar to that which is responsible for the great controversy in which the biologists have recently been engaged. Almost everywhere appear two schools, of which the one attaches the greatest importance to race, transmitted characteristics or heredity, while the other regards this factor as subordinate to the influences of environment. In anthropology the two schools appear in various phases of the old debate between the monogenists and the polygenists as to the mutability or permanence of characteristics. To take a modern example, nearly everywhere in Europe we are confronted with the fact of a distinct anthropological differentiation, especially marked in differences of stature, of the

¹ For a fine outline of the present standing of geography in English Universities, *vide Educational Review*, VI, 417. See also the Roy. Geog. Soc., Supp. Papers, I, part 4, London, 1886, and the Proceedings of the same society since that date, especially for 1888 ; and Proc. Brit. Assoc. Adv. Science, 1887, p. 158. The files of the *Scottish Geographical Magazine* also contain notes from time to time on the progress of the science in the Universities.

² The International Geographical Congress at Chicago devoted no less than five papers to the relation of geography to history.

populations of the mountainous regions from those of the open plains. In the early days, when race was an adequate explanation for everything, the problem was simple. But since the doctrine of evolution has shaken faith in what Cliffe-Leslie has called "the vulgar theory of race," a second competent explanation is to be found in environment. The choice between these two possible causes of the phenomenon, or the proportion in which the two shall be combined, varies in absence of more definite proof with the personal bias of each observer.

In Russia there is from the southwest toward the northeast a general and progressive decrease in the stature of the population, which is explained by Anoutchine mainly as the result of heredity.¹ Race fixes the average stature, while environment merely affects the rate of growth. In other words, the short stature of the pure Slav toward the Asiatic frontier has been raised in the southwest by intermixture with a taller race. Tschouriloff applies the same reasoning to the people of Normandy.² On the other hand, Professor Ranke, following von Baer, accounts for similar differences of stature in Bavaria, with no greater contrast of physical surroundings, as the result of conditions of life, particularly of soil and elevation—a view which is maintained also by d'Orbigny.³ Similarly, Pagliani and Sormani ascribe the relatively short stature of the Italians along the Adriatic coast to intermixture with a stunted race from the Orient. With no more conclusive arguments Cortese explains the relative shortness of the people of Sardinia by reference to the barrenness of the soil and the general poverty⁴—a theory which follows the views of Lombroso with regard to the Italians in general.⁵ In France, the school relying upon environment includes the

¹ *L'Anthropologie*, I, p. 62.

² *Jour. Soc. de Stat.*, Paris, XVI, p. 5. Precisely the same reasoning is used to explain differences of stature in Thuringia, where any relation to the richness of the soil is denied. *Archiv f. Anth.*, Aug., 1888.

³ *Beiträge zur Anth. u. Urgesch. Bayerns*, IV, p. 17. This view recurs constantly in all his works; *vide Der Mensch*, II. For Mecklenburg the contrary explanation is offered by other writers, who appeal to race. *Archiv f. Anth.*, XIX, fasc. 1.

⁴ *Rev. d'Anth.*, 2d ser., V, p. 710; and *Annales de Demog.*, V, p. 184, *et seq.*

⁵ *Annales de Demog.*, VII, p. 59.

names of Boudin, Sanson, Villermé and Quatrefages de Breau,¹ with Quetelet in Belgium. Its opponents, relying upon race as the main factor, include Broca² and Topinard.³ At the present time a strong reaction in favor of environment is headed by Dr. Collignon.⁴ In explaining the development of the French Swiss, J. Carret⁵ appeals to environment, in opposition to Dunant,⁶ who relies upon race. Dr. Brinton concludes that "differences of stature are tribal, but not racial."⁷

To a lesser degree we may trace a similar division of opinion in respect of anthropological characteristics other than stature. Ranke would account for craniometric differences between mountain and plain in terms of environment,⁸ where Livi in Italy, under similar circumstances, would deny that anything but race intermixture could cause them.⁹ Virchow would in all cases, whether as regards cephalic index or pathologic predisposition, rely upon the individual and inherent characteristics rather than upon the external surroundings.¹⁰ The tendency of certain portions of the French population to contract certain disorders may be explained likewise on either of these bases.¹¹ This diversity of views may be said to reach a

¹ Bull. Soc. d'An., 1893, pp. 139, 209, 254; Topinard, *Éléments*, p. 387; *L'Espèce Humaine*, chap. xxii.

² *Rev. d'Anth.*, 2d ser., VI, p. 523.

³ Topinard, *Éléments*, p. 457.

⁴ *Mém. Soc. d'An.*, 3d ser., fasc. iii, 1894, p. 31.

⁵ *Étude sur les Savoyards*. Criticised in Topinard, *Éléments*, p. 450.

⁶ Topinard, *Éléments*, p. 457. The question is left undecided for the decrease in stature in Tyrol and Voralberg toward the southwest. *Mitt. Anth. Ges.*, Wien, XXI, fasc. 2 and 3. Similarly for Baden in *Archiv f. Anth.*, Braunschweig, IX, p. 257.

⁷ *Races and Peoples*, p. 35.

⁸ *Mitt. Anth. Ges.*, Wien, XVII, p. 132; *Beiträge*, IV; *Der Mensch*, II, p. 207 and 222. Kollmann insists upon the immutability of racial types in all cases. *Verh. der Berl. Anthrop. Ges.*, 1889, p. 332.

⁹ *Archivio per l'Antrop.*, XVI, p. 223, *et seq.*

¹⁰ *Vide* remarks by Dr. Luschan in *Proc. Assoc. fran. pour l'Avan. des Sciences*, 1878, p. 825; and *Correspondenzblatt der Deut. Ges. f. Anth.*, XVIII, p. 18.

¹¹ Durand de Gros (*Bull. Soc. d'An.*, 1868, p. 138, *et seq.*), Dr. Bordier (*La Géographie Médicale*, p. 90) and Dr. Chevrin (*Comp. rend. de l'Assoc. fran. pour l'Avan. des Sciences*, 1878, p. 803) ascribe the bad teeth of certain portions of the French population to soil and water. Lagneau (*Bull. Soc. d'An.*, 1867, p. 389), Dr. Chibret (*L'Anthropologie*, III, p. 353) and Levasseur (*Bull. Inst. Int. de Stat.*, III, fasc. 3, p. 42), in similar cases, appeal to race or heredity.

climax in the debate as to the origin of the Aryans. Penka and Reinach regard them as a product of outward circumstances, while Schaafhausen explains the physical differentiation of the Aryan from the Mongol type by the influences of civilization, which are a product of inwardness, or of training and heredity.¹ It is probable that the true explanation is a combination of the two views ; but the fact that they may, in the end, reduce to the same, does not in the least lessen the sharpness of the controversy.

The predisposition of observers to take these opposing views on the same, or similar evidence, may be shown by a few more illustrations chosen at random. It appears at once in all discussions over the various forms of village community and of architectural types in Europe. Thus, Aug. Meitzen divides Germany into several sections, dominated respectively by what he terms the German, the Celtic, the Roman, and the Slavic type of village. In comparing these, the haphazard grouping of homes in the Germanic village is sharply contrasted with the regular arrangement in the Slavic community, with its houses about a central court or along a straight street ; and the regular division of the land into hides (*Hufenverfassung*) owned in severalty, which characterizes the German type, is as sharply differentiated from the holding of lands in common among the Slavs. Distinct from each in many respects, especially in its peculiar architectural customs, is the Celtic type, which rules in South Germany and Bohemia.² Approaching the subject in this way, the statistician may help in solving the vexed question of the origin of the rural types of the population, provided these traits are the constant result of race and of heredity. But if these differences are merely the result of local circumstances, all their ethnological significance vanishes, and they become of importance merely for purposes of reform or administration. In a similar investigation in France,

¹ *Vide L'Anthropologie*, III, p. 747 ; *Ausland*, 1891, p. 7 ; *L'Origine des Aryens*, Paris, 1892 ; especially the discussion in *Verh. Anth. Ges.*, Wien, Nov. 11, 1884.

² *Beobachtungen über Besiedelung, Hausbau und landwirthschaftliche Kultur*, in Kirchhoff's *Anleitung zu deutschen Landes- und Volksforschungen*, p. 481 *et seq.* ; or *Zeits. für Eth., Anth., u. Urgesch.* for 1872, Sitz-Verh. for April 13.

the predilection for environment has apparently led to this conclusion.¹ So, in Germany, may not the utter lack of variety in the quality of plots for cultivation in the open plains of the Slavic people have led to habits of communal ownership, which are perpetuated in a new land through the selection for habitation of localities where such customs may persist unchanged? May not even the laws of inheritance be affected by the environment in the sandy sterile regions, to the end that primogeniture, and not equal division of the land among heirs, may be the only form of inheritance which will survive? Is not emigration of all the children but one a physical necessity? These are some of the questions which the geologist, Cotta, would answer in the affirmative; and Baring-Gould acquiesces in his opinion.² The truth, probably, is a mean between these extremes; but in the absence of some recognized criterion our judgment will depend to a great extent upon personal predilections. Precisely the same conflict of opinion may prevent a final acceptance of some of the theories of Mr. Gomme with regard to the early inhabitants of Great Britain; for we may emphasize the ethnic element, as he is inclined to do, or we may prefer to interpret the form of the village more nearly in terms of environment, as does the geologist Tapley.³

A fundamental distinction must be made between social and physical environment. This is especially important because it is closely related to a further distinction between the direct and the indirect effects of the *milieu*. Thus, that in general,

¹ Enquête sur les Conditions de l'Habitation en France. Les Maisons Types. Min. de l'In. Pub., des Beaux Arts et des Cultes, Paris, 1894. Introduction by A. de Foville. *Vide* pp. ix-xviii, especially.

² Deutschlands Boden, sein Geologischer Bau und dessen Einwirkung auf das Leben des Menschen, Leipzig, 1858. In part ii, p. 63, *et seq.*, the geological factor in the distribution of the village community in Germany is fully discussed. *Vide* also, Karl Goritz, Ueber die im Königreich Württemberg üblichen Feldsysteme und Fruchtfolgen, 1848. Baring-Gould, in *History of Germany*, p. 74, adopts this view.

³ The Village Community in Great Britain, p. 133, *et seq.*, and *Jour. Anth. Inst.*, III, p. 32, *et seq.*, especially p. 45. All of the references on this subject are accompanied by diagrams, maps or illustrations. The peculiarities of land tenure in the South Midland and other counties may likewise be the product of a double set of causes. Examples might be indefinitely multiplied.

under a system of peasant proprietorship, the size of agricultural holdings should be larger on an infertile soil than on rich bottom lands, is a direct result of environment; for the size of holdings tends to vary according to their capacity for giving independent support to a household.¹ But the influence of environment is no less important, even though less direct, when the infertile region produces social isolation, and thereby generates a conservative temperament, which resists all attempts at a subdivision of the patrimony.² The result — a holding above the average size — is in each case the same, and the ultimate cause is physical environment.

This distinction between social and physical environment may be illustrated by a concrete example in the domain of anthropology. The fact has been noted quite independently in various countries of Europe, that the urban populations differ craniometrically in a marked degree from the people of the surrounding agricultural regions. Calori discovered that the people of Modena have decidedly narrower heads than the suburban population — the cephalic indices being respectively 80.6 and 83.4.³ Durand de Gros noted the same difference among the French in Aveyron;⁴ and Ammon affirms it to be true in the Grand Duchy of Baden.⁵ In Bavaria, Ranke observes a difference between city and country in the average size of the heads,⁶ which varies, moreover, in opposition to other physical characteristics. This cranial differentiation may be variously explained. In the first place, it may mean that the greater mental strain in city life has

¹ The further discussion of this question is reserved for more detailed treatment.

² This is the cause assigned by Cliffe-Leslie for certain peculiarities in land-tenure in parts of France. *Fortnightly Review*, XVI, p. 740.

³ *Archivio per l'Antrop.*, XVI, p. 274. Livi and Lombroso confirm this fact, which Riccardi (*Cefalometria dei Modenesi moderni*, Modena, 1883) has also pointed out.

⁴ *Bull. Soc. d'An.*, 1868, p. 228.

⁵ *L'Anthropologie*, III, p. 317; and *ibid.*, III, p. 722.

⁶ *Correspondenzblatt der deut. Ges. für Anth., Eth. u. Urgeschichte*, III, p. 211; and in *Stadt- und Land-Bevölkerung verglichen in Beziehung auf die Grösse ihres Gehirnsraumes*, Stuttgart, 1882. Urban selection in England is discussed in Beddoe, *Races of Britain*, p. 225.

directly caused a morphological change toward dolichocephaly.¹ This seems improbable, since Virchow, following all the evidence offered by the study of savage man, affirms that the tendency of civilization is toward the broader-headed type.² Or it may be that the cranium has merely participated in the changes which improved economic conditions have produced in all the physical measurements.³ In all these theories heredity is recognized as effective, wherever the influence of social environment is direct. Another class of explanations rely upon natural selection as the efficient cause. In the same race there may spontaneously arise two types, of which the keen competition of a hot city life selects the better fitted for survival. Or, lastly, there may be two distinct race types, with concomitant physical and mental characteristics, to one of which the city offers superior inducements for immigration.⁴ In such a theory all direct effect of civilization upon the cranial conformation disappears:⁵ the less progressive type is merely stranded in the rural districts instead of being exterminated in the city itself. This last explanation has been finally accepted in France.⁶ That it is in part true for Germany follows from the fact that differences in the color of eyes and hair accompany the differences of cephalic indices,⁷

¹ Or it may, as Dr. Beddoe has pointed out, be due to differences in professional activity. Topinard, *Éléments*, p. 449.

² See *L'Anthropologie*, IV, p. 42, for a review of Bogdanov's conclusions for Russia, agreeing with Virchow. These are criticised in Topinard, *Éléments*, p. 396, although the general tendency of civilized man toward brachycephaly is acknowledged. *Ibid.*, p. 406. Schaafhausen alone differs. The measurements of Stephanos show that the modern Greeks are broader-headed than those of classic antiquity.

³ See remarks in Beddoe, *Races of Britain*, p. 78. Also Ranke, *Beiträge*, IV, p. 17; *Jour. Anth. Inst.*, XI, p. 412; *ibid.*, VI, p. 174; *Archivio per l'Antrop.*, XV, p. 98; *Bull. Soc. d'An.*, 1888, p. 156. The relation of stature to brain capacity is well treated in Ranke, *Der Mensch*, II, p. 225.

⁴ It may be that there is compulsion from behind—that migration from the country is due to the desire to preserve the rural patrimony intact.

⁵ Schmidt has shown that the cranial capacity of the Parisian is less than that of the Celt. Ranke, *Der Mensch*, III, p. 228.

⁶ A peculiarly interesting case is offered by the city of Limoges. *Mém. Soc. d'An.*, Paris, 3d ser., I, fasc. 3, p. 19.

⁷ Thus the population of Bavarian towns has been shown to contain a high percentage of the brunette type. G. Mayr, *Die Bayerische Jugend*, Separat-

until it would indeed appear that "the industrial and commercial struggle is a conflict of races."¹ This is an illustration of what we may term the indirect effect of social environment.

The importance of emphasizing the distinction between the direct and the indirect influence of environment lies in the fact that with advance in culture, it is the latter, subtler aspect of the *milieu* which becomes progressively of greater importance. All thinkers would agree with Mr. Spencer, "that feeble unorganized societies are at the mercy of their surroundings"; or with Mr. Kidd, that "the progress of savage man, such as it is, is born strictly of the conditions in which he lives." Nature sets the life lines for the savage in climate; she determines his movements, stimulates or restrains his advance in culture by providing or withholding the materials necessary for such advance. The science of primitive ethnology is a constant illustration of this fact even in the smallest details.² It is only when we come to study peoples in more advanced stages of culture that we find environment marking the line of cleavage between two opposing views. One set of thinkers affirm that at a certain point, natural selection seizes upon mind as the dominant and vital factor in progress. Society passes from the "natural" to the "artificial" stage. Based upon this thesis, the study of environment becomes more and more retrospective — even, so to speak, archaeological. The Alps, which once divided the culture of bronze from the age of iron, became powerless to prevent the passage of Hannibal or Napoleon; and to-day the Triple Alliance sits restfully astride them, while Germany is effectively divided from her neighbors France and Russia, although geographically akin to both.

The opponents of this optimistic view take the ground that

Abdruck des Bayr. stat. Bureaus, 1875. The intimate relation between pigmentation and vitality in the brunette type is discussed in *Rev. d'Anth.*, 3d ser., II, p. 265. If, indeed, "pigment is an index of force," the point is proved. Cf. Beddoe, *Races in Britain*, p. 224.

¹ *L'Anthropologie*, III, p. 122. This subject is discussed on a slender basis of statistical facts in Ammon's *Natürliche Auslese bei Menschen*.

² This is ingeniously worked out by Professor Shaler in *Nature and Man in North America*.

civilization is merely a result of adaptation to environment, physical as well as political. Once more to quote Mr. Bryce :

The very multiplication of the means at his [man's] disposal for profiting by what nature supplies, brings him into ever closer and more complex relations with her. The variety of her resources, differing in different regions, prescribes the kind of industry for which each spot is fitted ; and the competition of nations, growing always keener, forces each to maintain itself in the struggle by using to the utmost every facility for the production or for the transportation of products.¹

It would be easy to multiply examples of the effect of progress in thus compelling specialization—the utilization of each advantage to the last degree,—thus illustrating the force of environment even in the highest civilization. When the vine was introduced into California, the settlers tried to cultivate it in the north and in the south, along the rivers and on the hill-sides, near the coast and in the interior. The grape rapidly took root and grew, but its very prosperity in some places threatened its culture in others.² Some valleys soon proved too hot to produce wine which would sell in competition with the best ; some soils were too heavy, others too moist. Certain regions produced sherries, while others served better for port wines. To insure success, the conditions had to be most diligently investigated each year ; and it was precisely because all were successful that specialization had to follow.

A similar example is the progressive differentiation in agriculture taking place all over the United States to-day. Once it was possible to point to the corn, cotton, wheat and rye belts, and to show a massing of each crop, regardless of local circumstances. But in virtue of the severe international competition these great aggregations of similar crops are breaking up, and local specialization is the rule.³ It is precisely

¹ A new chapter on this subject added to the third edition of the American Commonwealth, II, p. 450. The same view is well expressed by General Strachey in *Proc. Roy. Geog. Soc.*, XXI, p. 200, *et seq.*; and by Professor Geikie in *ibid.*, 1879, p. 442, and in *Macmillan's Magazine* for March, 1882.

² *Fortnightly Review*, vol. liii, p. 401, *et seq.*

³ *Publications Amer. Stat. Assoc.*, Dec., 1893, p. 492, *et seq.*

because nearly all Japan is favored as a silk-producing country that her best silk culture is forced to localize itself.¹ Less than a quarter of a century ago a difference of an inch in the length of the cotton staple was of slight importance ; but in 1894, with improved manufactures, Egypt found a ready market in the United States — the home of cotton — for 35,000,000 pounds of her product. The same principle holds true of mechanical industry. When the manufacture of cotton was introduced into the United States it was indiscriminately prosecuted wherever there was water-power and labor. At last it was perceived that climatic influences were of great importance in the finer fabrics, and to-day there are indications that the work of this grade is tending to localize itself along the south shore of New England.² Here, again, it is not any lack of ability to manufacture in the less favored spots, but the conspicuous advantages in the new localities, that finally produce the new results. Each advance in skill makes the influence of local peculiarities more keenly felt. In short, we have here merely another illustration of the economic advantages of division of labor.

IV.

The scope and purpose of this new phase of geography — the study of physical environment — are certain and well-defined. It is a branch of economics, with a direct bearing upon history and sociology. As Mr. Bryce observes :

It is the point of contact between the sciences of nature taken all together and the branches of inquiry which deal with man and his institutions. Geography gathers up, so to speak, the results which the geologist, the botanist, the zoölogist³ and the meteorologist have

¹ *Jour. Roy. Geog. Soc.*, vol. xl, p. 340.

² *Vide* article by the author in *New York Evening Post*, Mar. 30, 1895.

³ For a fine illustration in this field, see Payne's recent *History of America*, especially his treatment of the zoölogical poverty of the New World in its bearing upon the Aztec civilization. Compare the use made by Canon Taylor of the distribution of the beech tree in Europe in locating the center of dispersion of the Aryans. *Vide Proc. Brit. Assoc. Adv. Science*, 1889, p. 782. The paper is published in full in *Knowledge*, Nov., 1889.

obtained, and presents them to the student of history, of economics, of politics, — we might even add of law, of philology, and of architecture, — as an important part of the data from which he must start, and of the materials to which he will have to refer at many points in the progress of his researches.

In this sense the science may, perhaps, be termed merely a mode of sociological investigation — the geographical as distinguished from the graphical method ; and in this case there is no limit to its application. This is the sense in which Dr. Schiffner has defined it when he says: "Every relation of life which exists upon the earth, and which may be plotted upon a map, belongs in one sense to geography."¹ It may illustrate the spread of a great economic movement.² It may be applied, as by Canon Taylor, to the study of linguistic ethnology,³ and it has a great future in the study of dialects. It may show the distribution of intellectual characteristics.⁴ And most suggestive work may be done in showing the geographical distribution of membership in learned societies, colleges and other institutions, or of political affiliations. Its applications in anthropology, and in statistics generally, are too well known to need mention.

With all its possibilities, however, this science must clearly recognize its own limitations, arising from the power of purely historical elements, of personality, of religious enthusiasm, and of patriotism.

The fact probably is that historical phenomena should be ranked in a gradually varying series, at only one extremity of which the reign of law can be absolute and supreme. In proportion as merely physical facts enter into the matter of the case, do historical phenomena tend to place themselves in this law-dominated extreme. The science

¹ *Mitt. Geog. Ges.*, Wien, Neue Folge, VII, 1874, p. 103. A discussion by a lawyer upon the application of geography to the study of law is a fair illustration of this phase of our study.

² In Ashley, *Economic History*, II, opposite p. 304, is a map illustrating the spread of enclosures in England.

³ In Words and Places are several such maps. In Germany, especially, dialectic maps have long been in use.

⁴ "Geographical Distribution of Intellect," in *Jour. Roy. Stat. Soc.*, vol. xxxiv, p. 357, or "Education in Hungary," *Petermann's Geog. Mitt.*, 1884, plate ix.

of geography, among others, embraces a wide circle of physical facts bearing directly upon history. The migration of peoples in all times, wars in all their kinds and in all their details, the growth and break-up of empires, the production and maintenance of the balance of power among groups of nations, are instances of historical facts largely affected by geography; and to the same class obviously belong, in a yet higher degree, the incidents of maritime discovery. The case of America amply bears out the inference. Were all historical facts of the same kind, the history of the discovery might rank among the leading illustrations of the theory that history may be predicted from its preceding conditions.¹

Prediction, even in this sphere, is, nevertheless, always dangerous. By all the laws of geographical probability, English influence on France ought to have been greatest in Normandy; while in reality Aquitaine was the center of England's continental activity. That Yorkshire and not Kent should to-day exhibit the strongest infusion of Norman blood in England, is also a geographical anomaly. Again, take the following case in connection with the distribution of population. In Brittany a primitive, non-absorbent rock formation affords numerous natural reservoirs to hold the abundant rains, and the population is scattered broadcast in little hamlets. In the Department of the Marne, on the other hand, where a calcareous soil quickly absorbs the scanty rainfall, the people are bunched about the springs and rivers. Accordingly, the two districts differ widely in their percentages of urban population and in all the social characteristics dependent thereon.² It would seem as if the relation of geological and social conditions here discovered might be formulated into a general law, through which the course of settlement in a new country might be predicted. But the United States promptly sets such a law at defiance. For here it is on the primitive rock formations, in the area of plentiful rains, that the New England village is at home. It is in the drier areas of the West, and even on their clayey soils, that population is most widely scattered. Thus, the

¹ Payne, *op. cit.*, p. 18.

² For illustrations in detail see Levasseur, *Bulletin de l'Inst. Internat. de Statistique*, III, liv. 3 (1888), p. 73.

force of custom and tradition proves itself fully able to withstand for a time the limitations of physical conditions.

Yet, even if it does not reach the grade of a predictive science, the study of the *milieu* cannot be neglected. One of its aims will always be "to discover whether the historical development of a people is in harmony with its environment, and if not, whether it is a plus or minus factor in progress."¹ If it be modest in this wise, geography will soon establish its position as an essential branch of political and social study.

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